A Cooperation Plan
for the
Niagara Escarpment Biosphere Reserve

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What is a biosphere reserve and why does it work through cooperation?

A biosphere reserve is an area designated by UNESCO (United Nations Educational, Scientific and Cultural Organization) to demonstrate innovative approaches to living and working in harmony with nature. There are over 400 biosphere reserves and each of them represents one of the world's major ecosystems.

The word "Biosphere" means "sphere of life" and represents all the living parts of the world. It is another way to refer to the earth. The word "Reserve" means that it is an important area of the world that has been recognized for its special qualities. UNESCO uses a word that can be translated and understood in different countries. Use of this term does not mean that these places are set aside from human use and development. In fact, the study of human use is an important part of the biosphere reserve program. Taken together, the words "Biosphere Reserve" indicate a special part of the biosphere where better approaches to both human and natural issues are demonstrated.

Protected areas are included as core areas because they act as reference points on the natural state of the ecosystems represented by the biosphere reserves. This information can then be used to improve assessments of landscape change, enhance the success of restoration efforts or contribute to other projects. Also, managers of the core areas may contribute resources to projects developed with residents, businesses and other partners of the biosphere reserve. These land managers are not leaders of the biosphere reserve, however. For biosphere reserves in Canada, a committee or organization with strong community representation normally provides leadership.

The large outer part of a biosphere reserve is the Area of Cooperation. This is where people live and work, using sustainably the natural resources of the area. This term emphasizes the role of cooperation as the main tool used to achieve the objectives of a biosphere reserve. In other countries, the outer zone is called "transition zone" but UNESCO is starting to recognize the usefulness of the Canadian term "Area of Cooperation" and other countries are beginning to use it in their biosphere reserves.

The authority over land/water use or planning is not changed when a biosphere reserve is designated in Canada. Government jurisdictions and private rights remain as they were before designation. A stakeholder's signature on a nomination document for a biosphere reserve implies only a moral commitment, not legal commitment, to cooperate with others to achieve the objectives of a biosphere reserve.

The three major functions of a biosphere reserve are: Conservation of Biodiversity, Sustainable Development and Support for Logistics. The term "logistics" refers to the activities of education, research, training and monitoring which partners in a biosphere reserve provide in support of conservation and development. In Canada, we now refer to this third function as Capacity Building because these education research and other projects help to build local capacity to address the objectives of a biosphere reserve. Working together to develop capacity building activities helps residents in a biosphere reserve to meet their own needs and is a prerequisite for acquiring broad-based support from all sectors of the community or communities associated with the biosphere reserve.

UNESCO has been encouraging biosphere reserve coordinators to develop management or coordination plans to increase their effectiveness. In countries such as Canada, where coordinators have no authority over land use, all biosphere reserve activities depend on cooperation. For this

reason, the term Cooperation Plan is more appropriate. As you may see in this plan, partnership and participation are emphasized. The plan is developed for the residents, businesses and other organizations and agencies of the biosphere reserve. In it the goals for the three functions of the biosphere reserve reflect what is appropriate to meet local needs and desires. This cooperative approach encourages innovation, fosters pride in local achievements, and creates a desire to share these experiences within Canada and with other countries around the biosphere.

Background on the Niagara Escarpment Biosphere Reserve

As the most prominent topographical feature in Southern Ontario, the largely forested limestone ribbon of the Niagara Escarpment extends for approximately 725 km from Queenston, near Niagara Falls, to Tobermory at the tip of the Bruce Peninsula between lake Huron and Georgian Bay.

The formation of the Niagara Escarpment began 430 to 450 million years ago. Glaciers and water shaped the rock, creating features like caves, cliffs, waterfalls and eroded shorelines. In some areas, the Escarpment is obscured by glacial deposits, which create a rolling, hilly topography.

The general north-south alignment of the corridor contributes to this diversity as the Escarpment crosses two major ecological regions. Flora changes dramatically as one moves northward from the warm, humid Niagara Peninsula lowlands to the harsher highlands of south-central Ontario and the limestone plains of the Bruce Peninsula. The southern Carolinian life zone is one of the most biologically diverse regions in Canada. About 40% of Ontario's rare vascular plants occur only in this zone. North of Halton, the Escarpment enters the south half of the Great-Lakes – St. Lawrence forest region where sugar maple, beech and hemlock dominate. In direct contrast to the Carolinian characteristics of the southern Escarpment, northerly sections of the Bruce Peninsula have a much harsher climate. In some areas, sub-arctic flora can be found.

Features such as caves, valleys, cliffs and crevasses in the weathered Escarpment provide a variety of micro-climates along vertical gradients that add to the diversity. Here, habitat is optimal for old-growth cedars and ancient ferns. Furthermore, in some areas, the unique combination of fissured limestone and extreme climatic conditions produce globally rare alvar habitat, home to an array of specially adapted flora and fauna. Altogether, more than 300 birds species, 55 mammals, 36 reptiles and amphibians, 90 fish and 100 varieties of special interest flora (including 37 types of wild orchids) thrive on the Escarpment.

Public concern about unregulated growth on the Escarpment led to the creation of the 1973 *Niagara Escarpment Planning and Development Act* that promotes environmental planning. The legislation strives to protect the region for future generations. Its purpose is "to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment." At its inception, the *Act* also provided for the establishment of the Niagara Escarpment Commission (NEC) and the preparation of a provincial *Niagara Escarpment Plan* (NEP) to administer a development permit system.

As Canada's first large-scale environmental land-use plan, the NEP presents a connected series of policies and objectives that forward ecosystem planning principles. When the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated the Niagara Escarpment as a biosphere reserve in 1990, the decision was influenced by the Plan's vision of reconciling

preservation, conservation and sustainable development – a goal upheld by biosphere reserves around the globe.

This image was a map showing the Niagara Escarpment Plan Area

To obtain a copy of the map, please contact Richard Murzin, Niagara Escarpment Commission, at (905) 877-5191, ext. 237.

Or view the map online at www.escarpment.org/About/overview.htm

Niagara Escarpment Biosphere Reserve and its Administration

The NEP supports three major functions including administrating land use designations and policies, setting development criteria and providing for a Parks and Open Space System. The designations within the 183,694 ha Plan Area defines zones that correspond with biosphere reserve buffer, transition and core areas. Different development criteria and permitted uses apply to each zone, depending on its level of protection.

The framework of the Parks and Open Space System enhances the plan, providing for the establishment and coordination of 117 existing and proposed publicly owned parks that are linked by the Bruce Trail. Together, they contribute to the network of core areas within the Niagara Escarpment Biosphere Reserve. The largest publicly owned park areas are the Bruce Peninsula National Park and Fathom Five National Marine Park at the northern end of the biosphere. Their presence contributed strongly to the Niagara Escarpment's designation as a biosphere reserve.

From a regulatory standpoint, the Niagara Escarpment Biosphere Reserve is unique. It is enshrined in provincial legislation (the *Niagara Escarpment Planning and Development Act*) which is embodied in a provincially adopted environmental plan (the *Niagara Escarpment Plan*). A special purpose body, the Niagara Escarpment Commission, implements the Plan. The Commission is composed of representatives from each of the Escarpment's municipal counties and regions and from the public at large. Its strength lies in its legal foundations and its ability to focus on the Niagara Escarpment as a whole across a wide range of political, government agency and stakeholder jurisdictions and interests. Biosphere reserves, of course, are decidedly non-regulatory. The key functions of biosphere reserves are delivered through cooperation, information sharing, and community consensus and involvement.

These two approaches have tremendous potential to complement each other. Ecology, economy and a good life can exist together, each a part of the other.

Approach

Preliminary meetings between the contractor and a small Steering Committee of NEC staff were held early in 2002 to discuss the potential of the *Cooperation Plan.* Discussion centered on how a plan could be carried out given the complexity of the NEBR due to its large scale, population and variety of organizations that could potentially foster biosphere reserve initiatives.

The Steering Committee suggested that the recommendations of past and ongoing research and activities along the Escarpment be reviewed to determine significant overarching themes and priorities. The priorities could then be presented within the context of the three biosphere reserve functions (as described in the following section). Given the short time for completion (about three months) it was thought that this would be the most practical and neutral way to develop a framework of proposed directions, flexible enough to be refined according to the wishes and interests of stakeholders.

In mid-February a letter was delivered to over 30 key individuals and organizations to solicit interest in a 'Focus Group' to develop the *Cooperation Plan* framework. The individuals and organizations for the group were selected based on their interest in the Niagara Escarpment (in its entirety) and/or for their ability to build upon existing activities, link mutual goals, identify gaps and help determine future steps (see Appendix A for list of focus group consultants and attendees.)

After positive response to the initial overture letter, the 'Focus Group' discussion was slated for March 26, 2002. The UNESCO (1996) *Seville Strategy and the Statutory Framework* for Biosphere Reserves was included with the invitation. The *Strategy* highlights the potential of biosphere reserves as tools for the coordination and promotion of innovative and integrated methods to link conservation, development and the needs of local communities. Further background documentation describing biosphere reserves, the role of CBRA and suggested strategic priorities was also included.

The agenda was segmented into three sessions that focused on each of the biosphere reserve functions. For the purpose of facilitating discussion, each of the biosphere reserve functions were translated into questions (Table 1).

Table 1: Focus Group Questions

Biosphere Function	Focus Group Question
• Biodiversity Conservation	• What are our priorities for preserving natural diversity on the Niagara Escarpment?
• Sustainable Development	• What are our priorities for encouraging sustainability in human activities on the Niagara Escarpment?
• Logistics and Capacity Building	• What are our priorities for improving the ability and capability of communities to make sound decisions for conservation and sustainable resource use on the Niagara Escarpment through research, monitoring, education and information exchange?

Discussion was based on the suggested priorities and actions corresponding to each function (Table 2). Participants were asked to 1) consider each priority – to confirm, add or subtract; 2) to confirm or suggest actions; and, 3) to estimate time frames.

The focus group session was positive and discussion was vigorous. Overarching themes were confirmed or clarified. The intent was to get as many ideas as possible on the table for discussion.

Because of an Ontario Public Service labour dispute, some invitees were not able to attend and others did not attend as a matter of conscience. Lines of communication remain open, however, and the *Cooperation Plan* framework is devised to be a flexible, evolving document. People and groups who could not attend have indicated that they remain interested in participating. The NEBR views the *Cooperation Plan* as a critical starting point for moving ahead in a coordinated way by a wide range of stakeholders, communities and decision-makers.

In addition to the focus group session, project organizers were asked to attend a Board meeting (April 11) of the Bruce Peninsula Biosphere Association to present information on the *Cooperation Plan*. The BPBA is the first local biosphere committee on the Niagara Escarpment. Its structure, composition and experience in community networking could provide important background and encouragement to other communities interested in pursuing biosphere reserve committees and objectives.

Organizers also attended a meeting of the Niagara Escarpment, Oak Ridges Moraine, Algonquin to Adirondack Heritage (NOAH) group. This new initiative may hold possibilities for examining habitat linkages between the Niagara Escarpment Biosphere Reserve and adjoining landforms.

As noted above, a chief aim in putting together this cooperation plan was to get as many ideas out as possible. For almost 30 years, the Niagara Escarpment has been a protected landscape but, conceptually, its function as a biosphere reserve is evolving. The Niagara Escarpment is a huge, complex place from both a natural and human standpoint. There is richness in this, and there are tensions.

This *Cooperation Plan* is a "first cut" at trying to define priorities. For our many partners and potential partners in the Niagara Escarpment Biosphere Reserve, it is something to discuss, to refine and to implement according to their needs.

Table 2: Focus Group Discussion Platform

Biosphere Function	Suggested Strategic Priority	Suggested Actions
• Biodiversity Conservation	• Habitat Continuity and Integrity	• Research and/or environmental monitoring directed at examining the state of Niagara Escarpment forests (e.g., forest cover, forest health, effects of forest fragmentation); • Research and/or environmental monitoring directed at examining distribution and quality of wetland habitat; • Habitat restoration and enhancement projects
	• Water Quality and Quantity	• Research and/or environmental monitoring directed at a better understanding of the impacts of human activity on ground and surface water; • Habitat restoration and enhancement projects.
• Sustainable Development	• Preservation of Open Landscape Character	• Research and/or environmental monitoring into landscape change • Research and/or environmental monitoring into the preservation of open landscapes, sustainable land uses, sustainable communities
	• Sustainability of Natural Resources	• Research and/or environmental monitoring on sustainable practices for extractive activities (e.g. water taking, forestry, aggregate)
	• Sustainability Standards	• Product branding and marketing standards
• Capacity Building	• Local Biosphere Reserve Committees	• Encourage the formation of local biosphere reserve committees
	• Data Management	• Collection and distribution of research and monitoring results
	• Community Awareness and Education	• Communications Strategy • Biosphere Reserve Signage and Education Program

	• Stewardship
	• Publications and Electronic Communications
	• Education programs for schools and programs delivered by schools
• Community Involvement	• Events: workshops, community celebrations
	• Community-based environmental monitoring
	• Continuation of *Leading Edge* Conference Series
	• University or other extension services
	• Publications
• Resource Allocation	• Overlap identification / gap analysis
	• Coordinated funding proposals

Vision of the Biosphere Reserve

The following vision is proposed for the Niagara Escarpment Biosphere Reserve. It will be subject to further discussion as the *Cooperation Plan* is shared and discussed among the Biosphere Reserve's many partners:

"To actively demonstrate that ecology, economy and a good life can exist together, each a part of the other."

Challenges for the Niagara Escarpment Biosphere Reserve

Shape & Size of the Area – Ontario's Niagara Escarpment is a linear landform, extending 725 km. It is a 6.5-hour drive from one end to the other. Communications, particularly face-to-face, can be difficult. Assembling scientific data, coordinating interconnected community projects, information sharing, establishing common standards for research projects etc. becomes more difficult and more expensive as distances increase. The scientific advantage to covering such a great span is that the Escarpment represents a significant transect for data collection.

Stakeholder Diversity & Numbers – There is a huge array of stakeholders in the Biosphere Reserve at both ends of the protection/development spectrum and everything in between. There are also governments, aboriginal people, departments, ministries, agencies and other land managers at four or more jurisdictional levels. For example, during a recent review of the Niagara Escarpment Plan, the "inner circle" of consulted parties numbered more than 450. Communications is a challenge. Collectively, however, cooperation between groups has sometimes yielded great amounts of data and can be an effective way to pool limited resources.

Proximity to Population & Sprawl – There is significant pressure to expand urban boundaries into the rural landscape, especially in the southern section, which constitutes the heavily populated "Golden Horseshoe" at the west end of Lake Ontario. As population moves closer, there is also pressure for

more roads and highways across the Escarpment. As well, there is pressure throughout the Escarpment area for recreational and vacation property development.

Recreational Uses – Because of the existing and increasing human settlement; there is increased pressure on the Niagara Escarpment as a recreational resource. (One of the objectives of the Niagara Escarpment Plan is to provide access to the Escarpment.) Recreational uses are known to have negative effects (e.g. decreased tree regeneration at cliff edge and in other trail areas; habitat destruction by rock climbers in undesignated areas.) This challenge may also provide positive opportunity to increase awareness and share information with a wider audience.

Sustainable resource use – The Niagara Escarpment is a source of natural resources such as mineral aggregate (sand, gravel and stone), wood (high-end furniture and floor grade) and water (especially for bottling). There is a long history of public discussion, and occasional controversy, around the issues of sustainability and best practices for extractive activities.

Sustainable Communities / Changing Communities – As ex-urban dwellers migrate to the Escarpment countryside in increasing numbers, a clash of values may occur with those families who have lived there for generations. As well, land-use choices by new, non-farming residents may have an impact on the environment, for example, by increasing or decreasing open, working landscapes.

Some communities are facing massive changes in lifestyle as new economies grow in their areas, for example, the rapid growth of wine tourism in the south and huge capital investment by four-season resort operators in the north.

Other communities, with static, decreasing or aging populations are searching for new ways to keep their areas economically viable and culturally alive.

The Biosphere Reserve Functions: Priorities for Biosphere Reserve Functions (Biodiversity/Sustainability/Capacity Building)

Function 1: Preserving and Maintaining Natural Diversity on the Escarpment

Preservation, habitat enhancement, restoration and stewardship at landscape, watershed or site levels all contribute to biodiversity conservation. Studies seeking to understand the requirements of an individual species-at-risk or the effects of cumulative impacts upon a sensitive biological indicator can help direct conservation efforts. Identifying and safeguarding habitat for a wide range of flora and fauna is also critical.

Biodiversity conservation within the Niagara Escarpment Biosphere Reserve does not apply solely to wild species and places. Preserving the mosaic of agricultural and cultural landscape patterns is also valuable. Planting heirloom seeds and traditional crops, maintaining shelterbelts and hedgerows and supporting a variety of domestic livestock contribute to the biological health of the rural community.

Priority 1: Maintaining Habitat Continuity and Integrity

The Escarpment is habitat for a number of significant species (ex. old growth cedars, ancient ferns) and ecosystem types (alvars, Carolinian forest) that are a priority for conservation. Habitat fragmentation from roads, agriculture, resource development and settlement each have an effect on the Escarpment's natural and biological heritage; however, studies as to quantity and degree are ongoing.

The goals for conservation of biodiversity range from the finer scale preservation of genetic diversity to the broader range conservation of landscapes and entire ecosystems. Land use activities, over time have the potential to incrementally erode the continuity of the Escarpment's natural environment. For example, recent analysis suggests that forest cover on the Escarpment has increased; however, the general size of forest parcels has decreased. This would certainly have an effect on certain species that rely on deep forest for their breeding or survival. The goal of maintaining and enhancing species diversity on the escarpment first requires defining and identifying critical habitat through landscape analysis and scientific inventory. Then, through sharing this information with communities and decision-makers, people will be better equipped to decide on the best course of action to maintain or enhance selected habitats.

Actions:

- ***Research and/or environmental monitoring directed at examining the state of Niagara Escarpment ecosystems.***

Suggested Activities:

1. **Develop a Natural Heritage System for the Niagara Escarpment Plan Area**

   The focus group suggested that there should be a Natural Heritage System for the Niagara Escarpment, beginning with forest cover. A set of *ecological maps* should be assembled for the entire Niagara Escarpment Biosphere Reserve. These maps could be used to identify priority areas for restoration; for example, gaps in forest cover. Over time, maps for the suggested Natural Heritage System could include all elements of a standard Natural Heritage System but also go a step further to include voluntary stewardship initiatives on public lands and by willing private landowners.

   The process of developing such a system would involve:

   a) An inventory of habitat fragmentation. By the end of summer 2002, the Ministry of Natural Resources (Natural Heritage Information System) is slated to complete mapping for Southern Ontario that will help identify habitat fragmentation. (Similar work, already done in Carolinian Canada, could serve as a model for the Niagara Escarpment Biosphere Reserve.)

   b) The assembly of monitoring data from monitoring projects already underway on the Escarpment. (Pooling this information is a significant task.)

   c) Devising mechanisms for effective information sharing and exchange of the collected information.

   d) Analysis of the above information to identify projects and initiatives necessary to maintain or restore the natural diversity of the Escarpment.

2. **Expand the Network of Forest Monitoring Plots**

   The goal of this activity is to expand the network of forest monitoring plots (based on the Smithsonian Institute/Man and the Biosphere protocols.) on the Bruce Peninsula, at the Northern end of the NEBR. The Bruce Peninsula Biosphere Association plans will conduct this activity, for the creation of a number of plots (TBA), beginning in the summer of 2002.

   This project will feature the following components:

a) Working with landowners who may be interested in establishing monitoring plots on their land.

b) Sharing information with the community about the purpose and function of environmental monitoring.

c) Developing mechanisms to share data with the community and with other interested parties in the biosphere reserve.

3. Habitat Restoration and Enhancement Projects

A major indicator of the continuity of the natural environment of the Escarpment is its forest cover, not just whether it is increasing or decreasing over time but also whether the forest parcels are connected. The amount of forest interior can be a general indicator of the "naturalness" of the environment and its potential for diversity.

Candidates for restoration or enhancement would be selected using assessment tools such as GIS and satellite imagery, site visits and scientific consensus. It is also very important to use knowledge and skills within local communities, especially that of local landowners.

Sites would be selected on their importance as links to natural corridors on the Escarpment and beyond, allowing for the migration of species. Significant and threatened areas would be identified as priorities for this type of restoration (e.g. prairie, oak savanna, and forests containing rare or threatened flora or fauna).

The process would include:

a) Identifying significant and or threatened areas as a priority for restoration.

b) Restoration of interior forest habitat (based on information supplied in step a).

c) Identification of natural corridors connected to the Escarpment; for example, Carolinian Canada (to the southwest) and the Oak Ridges Moraine (to the east).

d) Creation of an inventory of partners involved in forest and other habitat restoration in the Niagara Escarpment Biosphere Reserve.

Priority 2: Maintaining and Enhancing Water Quality and Quantity

The Niagara Escarpment is a critical source area of drinking water. Ground and surface water are part of the historic and current character of the Escarpment. As well as for human use, the Escarpment encompasses an extensive diversity of aquatic habitat types and associated biota. It is impossible to describe the Escarpment today without noting how the Great Lakes and the watershed network of rivers, streams, ponds and wetlands contribute to its character, making the Escarpment as much a hydrological as a geological feature. Because a positive correlation may exist between size, connectedness, health of this aquatic network and species richness, maintenance of water quality and quantity is an essential priority for biodiversity conservation.

Extractive industries (e.g. mineral resource extraction and water bottling), recreational uses (e.g. golf course watering and turf maintenance, ski hill snowmaking), agricultural practices and population

distribution potentially impact the Escarpment's aquatic resources. The effects of global warming complicate the situation.

Monitoring is required to determine if land use is impacting surface and ground water resources.

Determining land use impacts on surface and ground water is a priority in order to maintain the natural diversity of these aquatic resources and to thereby ensure that people have a reliable, safe source of drinking water for the future.

Actions:

- ***Research and/or environmental monitoring directed at a better understanding the impacts of human activity on ground and surface water, including wetlands.***
- ***Maintain and enhance the quality and quantity of water resources on the escarpment.***

Suggested Activities:

1. **Conduct research and/or environmental monitoring directed at a better understanding the impacts of human activity on ground and surface water, including wetlands (also see "Natural Heritage System" above.)**

   In devising such a system for monitoring, the following factors should be considered:

   a) Determine who controls water resources (well-drilling, water taking etc). This will assist in anticipation of partner and information sharing opportunities.

   b) Create an inventory of groups/agencies involved in ground/surface water monitoring.

   c) Identify parameters, techniques and scales of monitoring currently taking place on the Escarpment.

   d) Identify trends in water quality and quantity over time (e.g. of important questions to be answered: Are water table levels decreasing? Over what time period?).

   e) Determine gaps in aquatic monitoring activities along the Escarpment.

2. **Preserve and Enhance Water Resources Through Mitigation or Restoration Projects**

As with forest resources (above) an ongoing priority in the Biosphere Reserve is to improve overall water quality through restoration and enhancement activities. Because springs and aquifers that originate under the Escarpment extend and rise on properties both within and outside of the Reserve, activities will require coordination between jurisdictions. (As above in "Suggested Activities.")

The process will involve:

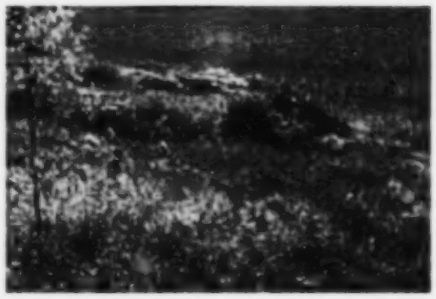
a) Identifying priority sites for restoration and rehabilitation.

b) Promoting projects that improve riparian and in-stream habitat. Offer workshops to inform landowners of strategies to improve stream health in watercourses affected by agriculture, dams or on-line ponds.

c) Continuing with biological and chemical monitoring programs.

Function 2: Sustainable Development

Priority 1: Preservation of Open Landscape Character



One of the objectives of the Niagara Escarpment Plan is "to maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving natural scenery". Open landscape character is defined by the NEP as "the system of rural features, both natural and human-made which makes up the rural environment, including forest, slopes, streams and stream valleys, hedgerows, agricultural fields etc."

The Niagara Escarpment is often referred to as a "working landscape." The Biosphere Reserve recognizes that traditional human activity is an integral and desirable part of the landscape. Sustaining the landscape, therefore, depends on sustaining activities such as farming.

Developing a vision for open landscape within the communities of the Biosphere Reserve requires an evaluation of local community values together with economic values. The Biosphere Reserve process can help facilitate this dialogue.

Actions:

- ***Compile, conduct and share research and/or environmental monitoring about landscape change;***
- ***Compile, conduct and share research and environmental monitoring about the preservation of open landscapes, sustainable land uses and sustainable communities.***

Suggested Activities:

Create a database of Niagara Escarpment Development Permit activity, Niagara Escarpment Plan Amendment data, air photos etc. over time to analyze possible trends in open landscape change.

Priority 2: Sustainability of Natural Resources

The Niagara Escarpment has a rich diversity of natural resources for both economic and recreational benefit. The Biosphere Reserve should facilitate discussion about how best to ensure the long-term viability of water, forest products, productive soils and aggregate resources in the interest of maintaining healthy, prosperous communities. The discussion may also extend to sustainable human use of recreational resources.

Eco-tourism has emerged in recent years as an economically and environmentally sustainable concept that supports alternative ways in which nature can be enjoyed. The eco-tourism philosophy encourages social responsibility and an increased awareness of the natural environment. Opportunities that embrace this philosophy and reflect the principles valued by Escarpment communities will be explored and encouraged.

Action:

- ***Research and monitoring on sustainable use of natural resources***

Suggested Activities:

1) Research and/or environmental monitoring on sustainable practices for extractive activities (e.g. water taking, forestry, aggregate).
2) Research and environmental monitoring into the impacts of recreational activities.
3) To facilitate community dialogue about sustainable resource use (e.g. forestry) through local forums, meetings and other information-sharing opportunities.

Priority 3: Sustainability Standards

Developing product branding and marketing standards is a way to encourage industry and local businesses that profit from the biosphere status to act in a responsible manner. Developing standards will ensure that those products displaying the biosphere trademark truly embrace the values upheld by Biosphere Reserves in Canada and the community in which they are operating. Biosphere branding may also act as an incentive for responsible product development.

Actions:

- ***Develop product branding and marketing standards for Niagara Escarpment Biosphere Reserve products.***

Suggested Activities:

1) Research necessary steps for potential trademark policies, including voluntary standards.
2) Investigate current use and possible uses for a BR trademark. In consultation with biosphere communities, develop sustainability standards that would apply to biosphere products.
3) Analyze experiences with biosphere branding in other jurisdictions (especially Europe, where there has been some experience in this regard).

Function 3: Capacity Building

Capacity Building consists of activities that increase the ability, interest, awareness and hope of people or organizations to conduct activities for conservation and sustainable development.

Priority 1: Local Biosphere Reserve Committee

Biosphere reserves are based on involvement and open discussion at the local level. Given the linear nature of the Niagara Escarpment Biosphere Reserve, it would be ideal to have a number of voluntary biosphere reserve committees. These committees could stand alone or could function as a subset of an existing community group. Any such group should contain a broad range of community members, which is fundamental to decision-making in biosphere reserves.

Action:

- **Formation of biosphere committees or biosphere-based sectors within existing community organizations.**

Suggested Activities:

Formation of a Local Biosphere Association

The following steps are involved in achieving this activity:

a) Develop an organizational structure, guidelines and procedures for a local biosphere reserve association.

b) Develop a plan of biosphere-related activities to be implemented by a range of local partners.

c) Develop mechanisms to share information, knowledge and experience with other communities in the Niagara Escarpment Biosphere Reserve.

d) Encourage receptive communities along the Niagara Escarpment to consider biosphere reserve committees for their communities.

Priority 2: Data Management /Collection and Distribution of Research and Monitoring

Good decisions come from good information. Because the Niagara Escarpment stretches 725km from north to south, information exchange and sharing can be a challenge to initiate and maintain. There is a vast amount of research and monitoring currently taking place within the Niagara Escarpment Biosphere Reserve. Disseminating this information and providing access to accurate, reliable scientific and social data is essential for those communities, organizations and individuals. Good decisions are based on good information.

Action:

- ***Create a Central database for Biosphere Related Monitoring and Research.***

Suggested Activities:

One central location to host data related to monitoring and research is desirable. This central host would maintain data and provide access to multiple stakeholders. Such a database would be beneficial for communities to share experiences and showcase successes. It would provide accurate information for decision- making processes, and create a link between researchers in the same field.

Action:

- ***Produce a "State of the Escarpment" Report.***

Suggested Activities:

The report would include ecological trends, report cards, landscape guides, and current monitoring and research activities. This report would be produced annually and provide an opportunity for reliable research and community initiatives to be shared. Such a report would allow the identification of gaps in monitoring and research or data sharing to become apparent. Communities could then begin to develop initiatives to fill these gaps.

Priority 3: Community Awareness, Education & Training

Ontario has had a Niagara Escarpment Program for about 30 years. Over that period there have been numerous activities for community awareness, education and training. Recently, more attention is being directed toward the rich possibilities of bringing biosphere concepts to the forefront, a role enthusiastically taken up by citizen and other non-government groups.

Action:

- ***Create a Communications Strategy and Plan for the Niagara Escarpment Biosphere Reserve***

Through the focus group session and in other meetings it was suggested that there should be improved communications about the Biosphere Reserve concept and about the Niagara Escarpment Biosphere Reserve. The starting point should be a communications strategy and plan that specifically addresses this need. In the meantime, it was suggested that there should be a centralized communications vehicle for the biosphere reserve, perhaps beginning as a subset of the Niagara Escarpment Commission's web site.

The following comprises a short list of suggested activities that could also be components of the communications plan (see Appendix B for a complete list of initiatives).

Action:

- ***Expand Biosphere Reserve Signage*** (Community Awareness)

Suggested Activity:

Expand the CONE signage program to cover the entire NEBR area.

In terms of on-the-ground visual identity, no program has been more effective than the Coalition on the Niagara Escarpment's (CONE) road sign program. Residents and visitors entering the biosphere reserve in three communities are greeted with "Welcome to the Niagara Escarpment, A World Biosphere Reserve." To complement the signs, CONE distributes a short biosphere reserve pamphlet in local service stations, libraries, stores and community centres. Funding and other support for the signs is a cooperative effort between local municipal government, service clubs, business and other community organizations.

Action:

- ***Stewardship*** (Education, Training)

Suggested Activity:

The University of Guelph, in cooperation with the Ontario Heritage Foundation and the NEC, plan to revise and reprint a stewardship handbook for landowners, *"Caring for Your Land,"* and a resource guide (the latter, on the Internet as well).

Enter into discussion with the University of Guelph and the Ontario Heritage Foundation as to the possibility of community launch and/or community workshop session(s) using the new handbook.

Action:

- ***Use Publications & Electronic Communications*** *(Awareness, Education)*

Suggested Activities:

a) Do an inventory of existing publications and electronic media with a view to providing these with information about the biosphere reserve. (This could be done as part of the Communications Plan, noted above).

   In the Niagara Escarpment Biosphere Reserve, there is a wealth of publications, some community-based and some directly related to the Niagara Escarpment. Most notable are CONE's *On the Edge* newsletter, the Bruce Trail Association's *Bruce Trail News* and the Escarpment Biosphere Conservancy's *Precipice.* (Each of these organizations also has significant web sites).

b) Add information about the Niagara Escarpment Biosphere Reserve and biosphere reserve concepts to the Niagara Escarpment web site.

c) Examine possibilities for other forms of electronic communications about the biosphere reserve. (This could be done as part of the Communications Plan, noted above). The most popular electronic source for information is the Niagara Escarpment Commission's web site. It has been suggested there should be more information about the biosphere reserve at the site.

Action:

- ***Promote Education Programs for Youth***

Suggested Activities:

a) The province of Ontario recently adopted a new school curriculum. Identify and update Niagara Escarpment related resources to create programs for teachers that are adaptable to the new Ontario school curriculum.

b) Examine the potential community benefits of incorporating the UNESCO Associated Schools Project Network concept into local school education. Conduct a pilot project incorporating the UNESCO school concept and biosphere reserve concepts at a school in the Niagara Escarpment Biosphere Reserve.

   The Bruce Peninsula Biosphere Association is engaged in community dialogue about the benefits of UNESCO's Associated Schools Project Network (ASPnet), an association of 6,700 educational institutions in 166 countries. In Canada, there is interest so far in three biosphere communities (Redberry Lake, Saskatchewan; Riding Mountain, Manitoba and Charlevoix, Quebec.)

c) Examine the possibility of hosting a community event for youth in a biosphere reserve community; namely, for the Bruce Peninsula Biosphere Association to host the Ontario Regional Envirothon in 2004.

   Ontario Envirothon is a hands-on environmental education program for youth. It raises awareness of environmental issues through resource materials, field trips and outdoor competitions in the six subject areas: General Ecosystem, Aquatics, Forestry, Soils, Wildlife and a special topic that is selected annually. Government and industry sponsor the event.

Action:

- ***Use Community Events*** (Awareness, Education)

Suggested Activities:

a) Do an inventory of regular community events and to examine how they could be enhanced to help spread the word about the biosphere reserve. (This could be done as part of the Communications Plan, noted above.)

Several organizations in the NEBR sponsor regular community events dealing with the Niagara Escarpment. The most notable of these are: the Leading Edge Conference Series (NEC, biennial) and Niagara Escarpment Celebration Day (CONE, biennial). Numerous suggestions have been made as to how these regular events could be helpful in spreading the word about the biosphere reserve.

b) Do an inventory of organizations who sponsor events dealing with sustainable land use matters in the NEBR. Identify opportunities to include information about the biosphere reserve in these meetings. (This could be done as part of the Communications Plan, noted above.)

Several organizations in the NEBR sponsor occasional events and workshops dealing with sustainable land use and stewardship in the NEBR. Most notable are organizations such as the Ministry of Natural Resources sponsored Community Stewardship Councils.

Action:

- ***Foster Ecosystem Linkages*** (Education)

Suggested Activity:

Explore mechanisms for information sharing between the Niagara Escarpment Biosphere Reserve, the Great Arc and NOAH. (This could be done as part of the Communications Plan, noted above.)

There are two relatively new initiatives to share information and conceptually connect Ontario's Niagara Escarpment to a wider area. The *Great Arc* working group, run out of the University of Waterloo's Heritage Resources Centre, promotes international information sharing for the Escarpment as it extends into Wisconsin, Michigan, New York and Ohio. The *Niagara Escarpment, Oak Ridges Moraine, Algonquin to Adirondack Heritage* (NOAH) group seeks to promote information sharing in an effort to enhance habitat linkages between the Niagara Escarpment Biosphere Reserve and adjoining landforms.

Priority 4: Resource Allocation

Some of the proposed activities may be achieved through cooperation – pooled resources and shared workloads – however, there will be requirements for additional funds.

Action:

- ***Develop a fundraising strategy for the Niagara Escarpment Biosphere Reserve.***

Suggested Activities:

Some of the suggested components of the fundraising strategy include:

a) An inventory of existing resources available to communities in the Niagara Escarpment Biosphere Reserve.

b) The creation of a prospectus on the Niagara Escarpment Biosphere Reserve for funders, highlighting NEBR projects geared to their funding priorities.

c) Where appropriate, NEBR and CBRA to act in a supportive role to assist others in securing funding for projects (letters of support, services in kind, guidance for proposal writing).

d) Develop a database of partnership and funding opportunities accessible to NEBR community groups interested in initiating projects.

Resources to Achieve the Priority Goals

A) Current Resources

The Niagara Escarpment Commission provides staff time to biosphere reserve activities. Funds for research, monitoring, restoration and public awareness projects have been secured on a case-by-case basis from outside sources, including private corporations and federal departments and agencies. This is frequently achieved through joint arrangements with the Canadian Biosphere Reserves Association and the Ontario Heritage Foundation. (The Ontario Heritage Foundation is currently considering possible uses for an annual endowment for stewardship activities within the biosphere reserve.)

The NEC is an arm's-length agency of the Ontario government reporting through the Minister of Natural Resources. As such, it has access to critical mapping resources provided by the Ministry and has a small GIS department of its own.

At the northern end of the biosphere reserve, the Bruce Peninsula Biosphere Association has received assistance and occasional administrative support from Parks Canada, a partner in the biosphere reserve. (The arrangement is such that funds are transferred directly to the association and are used totally at its discretion.)

Citizens groups, such as the Coalition on the Niagara Escarpment (CONE), the Bruce Trail Association and more localized community groups, receive funding – again, usually on a project basis – from various sources, including business and government.

There is a steady dependence on partnerships. For example, the NEC has partnered with the Canadian Wildlife Service for ongoing studies on forest interior bird nesting success and with the

Environmental Monitoring and Assessment Network for a study on land use change. Also, through its regulatory work, the NEC has a well-established network of connections with municipalities, provincial government ministries and agencies, conservation authorities and other land-use decision-makers.

Throughout the biosphere reserve, there are many local associations – environmental groups, stewardship councils, service clubs, sportsmen's associations etc. – that are well established but loosely connected. Past experience shows that some of these are interested in taking on biosphere related projects when resources are made available.

There are extensive mailing lists on hand of biosphere reserve stakeholders. Several organizations in the biosphere reserve operate web sites.

B) Resource Gaps

There needs to be better connectivity between the many groups in the Niagara Escarpment Biosphere Reserve. This can be provided initially through centralized information about the biosphere reserve and about the biosphere reserve concept. This will be dealt with in a communications strategy and plan, as proposed by this *Cooperation Plan.*

What was learned Developing the Cooperation Plan?

There is a high level of stakeholder interest in developing the biosphere reserve concept further for the Niagara Escarpment Biosphere Reserve. Several attendees of the focus group session were interested in joining a working group to help take this Cooperation Plan to its next stages.

The greatest difficulty is that the Niagara Escarpment landform is such a large and complex ecosystem with such diverse and widespread communities of people. At times, the discussion surrounding the creation of a Cooperation Plan was overwhelming in its scope. This is not a major concern – the purpose of this process was to "dream big". Even if a goal proves to be ambitious, the nugget of the goal may still hold true, to be refined according to available resources and partners' needs and wishes.

The time frame for creating the plan was too short to allow for wide consultation. Consultation was further complicated by a province-wide Ontario public service labour dispute that coincided with the production of the plan. Those who were unable to take part in the process will be consulted as soon as practical, as will people who comprise the Niagara Escarpment Biosphere Reserve's broader stakeholder group.

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Table 1A) Partners and Resources for Preserving Natural Diversity within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Action	A) Participating Partners/Resources	B) Potential Partners/Resources
Habitat Continuity & Integrity	1. Develop a Natural Heritage System for the Niagara Escarpment Planning Area	***Niagara Escarpment Commission (ONE) Monitoring Program*** ✓ The NEC has designed a metadata database that may be a good start to the inventory and data collection process. The database tracks monitoring and research activities taking place on the Escarpment, giving a sketch description of its content and where it can be found. There is potential to expand upon this database to include the collection of information related to other activities, such as stewardship, education, training and other projects of interest. ✓ University of Guleph, Cliff Ecology Research Group-are undertaking the mapping of the ecology of the Niagara Escarpment cliff face. They have also been at the forefront of research into cliff face restoration and into preservation from recreational uses (hiking, climbing).	➢ ***Municipalities, Park Managers (such as conservation authorities, MNR and Parks Canada), naturalist groups and willing private landowners*** for the collection of data necessary to develop the Natural Heritage System for the Escarpment. ➢ ***Ontario Ministry of Natural Resources***. There is opportunity to partner with the Ministry of Natural Resources for the development of the Heritage System maps (with the use of their new mapping system.)

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Suggested Priority	Suggested Action	A) Participating Partners/Resources	B) Potential Partners/Resources
Habitat Continuity & Integrity continued…	**2. Forest Biodiversity Monitoring Plots**	***Niagara Escarpment Commission (ONE) Monitoring Program*** ✓ The NEC has established 5 forest biodiversity monitoring plots on the Escarpment, and will continue to inventory these plots. ***Bruce Peninsula Biosphere Reserve Committee*** ✓ The Bruce Peninsula Biosphere Reserve Committee will undertake to add to the network of monitoring plots and to conduct information-sharing activities as described in the activities section. ***University of Waterloo*** ✓ Partners with NEC for a field course to establish and inventory the forest biodiversity monitoring plots. ***Canadian Forest Service*** ✓ Analysis of tree health data collected on monitoring plots, data sharing, and protocol instruction. ***Environment Canada, Ecological Monitoring and Assessment Network (EMAN)*** ✓ Provides protocols for implementation in the plots, logistical support, equipment	➢ ***Landowners, local stewardship councils, municipalities, academic institutions, and community groups*** to establish and inventory monitoring plots, analyze data, and share collected information.

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Suggested Priority	Suggested Action	A) Participating Partners/Resources	B) Potential Partners/Resources
Habitat Continuity & Integrity continued…	**3. Habitat Restoration and Enhancement Projects**	***Niagara Escarpment Commission (ONE) Monitoring Program*** ✓ The ONE MP has had some success in partnering with naturalist groups, schools, conservation authorities and private funding agents for the development and implementation of similar restoration projects. This partner will be a fundamental link to these groups and will be able to provide direction and input on how best to proceed.	➢ ***Conservation authorities, local stewardship councils, municipalities and community groups*** along the Escarpment have undertaken similar initiatives as the ONE MP for restoration and enhancement projects. These groups might benefit from the additional knowledge of a complete picture of the Niagara Escarpment Biosphere Reserve, as would the NEBR from a complete and ongoing inventory of projects.

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Table 1B) Priorities and Resources for Encouraging Sustainability within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Actions	A) Participating Partners/Resources	B) Potential Partner/Resources
Preservation of Open Landscape Character	1. **Compile, conduct and share research about landscape change.** 2. **Compile, conduct and share research and environmental monitoring about the preservation of open landscapes, sustainable land uses and sustainable communities.**	**The NEC 's *Cumulative Effects Monitoring Framework (CEM)*** ✓ Developed for the NEP Area, (Phase II, Final Report, June 1995) is available as a tool for biosphere communities to create a vision of "Open Landscape Character". This framework outlines the main components of the landscape that could be considered to contribute to the open landscape character of the Escarpment. Include vegetation cover, visual resources, and land use and settlement patterns and heritage resources. ✓ The **NEC** is compiling Niagara Escarpment land use data based on its development permit records which will be made available at its internet web site. **Environment Canada Environmental Monitoring and Assessment Network (EMAN)** ✓ Particularly its work on monitoring landscape change ***Ministry of Natural Resources*** ✓ Information sharing: Inventory Monitoring, Assessment and Reporting Project (IMAR).	➢ ***Municipalities, conservation authorities, Ontario government ministries: Ministry of Agriculture & Rural Affairs, Ministry of Municipal Affairs & Housing*** ➢ ***Community members, developers, private industry, private landowners, real estate agencies, MNR, academic researchers*** ➢ ***University of Guelph*** ➢ ***University of Toronto & EMAN*** (are coordinating the Integrated Mapping Assessment Project (IMAP), which is applicable to the NEBR)

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Suggested Priority	Suggested Action	A) Participating Partners/Resources	B) Potential Partners/Resources
Sustainability of Natural Resources	**1. Research and/or environmental monitoring on sustainable practices for extractive activities (e.g. water taking, forestry, aggregate)** **2. Research and environmental monitoring into the impacts of recreational activities.** **3. To facilitate community dialogue about sustainable resource use (e.g. forestry) through local forums, meetings and other information-sharing opportunities**	**Aggregate Producers' Association of Ontario & industrial operators.** ✓ Assist with providing information on extractive activities, monitoring and restoration plans. **Bruce Trail Association** ✓ Assist with providing information on recreational impacts to trails and act as a facilitator of information on sustainable recreation. **Bruce Peninsula Biosphere Reserve Association** ✓ Facilitation of dialogue and meetings for issues in the northern Bruce	➢ ***Foresters & Forest industry*** ➢ ***Ministry of Natural Resources*** ➢ ***Local stewardship councils*** ➢ ***Conservation authorities***-for information on suitable forestry practices and recreational opportunities. ➢ ***University Researchers***- University of Waterloo & University of Guelph currently have research taking place surrounding issues of sustainability, potential to tie into this information.

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Suggested Priority	Suggested Action	A) Participating Partners/Resources	B) Potential Partners/Resources
Sustainability Standards	**1. Develop product branding and marketing standards**		➢ ***Escarpment communities*** will be consulted to determine the values they want portrayed by the organizations that may benefit from the use of the BR trademark. ➢ ***Local businesses, corporations and industries*** that develop and market products and services on the Escarpment. ➢ ***CBRA*** ➢ ***Ministry of Consumer & Commercial Affairs***

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Table 1C: Partners and Resources for Capacity Building

Suggested Priority	Suggested Actions	A) Participating Partners/Resources	B) Potential Partner/Resources
Local Biosphere Reserve Committee	1. Formation of biosphere committees or biosphere-based sectors within existing community organizations.	✓ ***The Bruce Peninsula Biosphere Reserve Association***	➢ ***Interested communities throughout the biosphere reserve***
Data Management/ Collection & Distribution of Research & Monitoring	1. Create a central database for biosphere related monitoring and research 2. "State of the Escarpment Report"	***The Niagara Escarpment (ONE) Monitoring Program*** ✓ Currently maintains a metadata database of research and monitoring activities taking place on the escarpment. ***Canadian Forest Service*** ✓ Currently analyses and maintains database of forest tree health data collected within escarpment forest biodiversity monitoring plots. ***Ministry of Natural Resources*** ✓ Inventory Monitoring, Assessment and Reporting Project (IMAR); forestry data. ***Environment Canada Ecological Monitoring and Assessment Network*** ✓ Community monitoring programs, protocol establishment. ***Conservation Authorities*** ✓ Information sharing for monitoring and research projects within watersheds of the escarpment.	➢ ***University researchers, stewardship groups, naturalist groups*** to share data and projects for the development of a report, assist with data analysis, potential hosts for data storage.

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Community Awareness, Education & Training	**1. Develop a Communications Strategy and Plan for the Niagara Escarpment Biosphere Reserve.** **2. Biosphere Reserve Signage** **3. Stewardship** **4. Publications & Electronic Communications** **5. Education Programs**	***Niagara Escarpment Commission*** ✓ The NEC will undertake the drafting of a Communications Plan. ✓ Leading Edge Conference Series (conference to be scheduled for 2003). ✓ Will undertake to produce a kit for teachers featuring the biosphere reserve and biosphere reserve concepts. ✓ The NEC will enhance web site & invite linkages to improved information about the biosphere reserve & biosphere reserve concepts. ***The Coalition on the Niagara Escarpment (CONE)*** ✓ CONE has already taken the lead in the signage project, and organizes Niagara Escarpment Celebration Day (biennial). ✓ ***Bruce Trail Association*** ✓ ***Municipalities, local businesses, service clubs*** ✓ ***Conservation Authorities*** ***The Bruce Peninsula Biosphere Association*** ✓ is engaged in community dialogue about the benefits of UNESCO's Associated Schools Project Network (ASPnet). ✓ ***MNR Local Stewardship Councils*** ✓ ***University of Guelph*** ✓ ***University of Waterloo*** ✓ ***Parks Canada***	➢ ***The Great Arc and NOAH*** are potential partner projects in the process of being established. ➢ ***Escarpment Centre Ontario (ECO), Owen Sound; Giant's Rib Discovery Centre (Hamilton)*** ➢ ***Escarpment Outdoor Education Centres*** ➢ ***Escarpment Schools***

Table 1: Partners, Resources and Tools for the Niagara Escarpment Biosphere Reserve Cooperation Plan

Suggested Priority	Suggested Actions	A) Participating Partners	B) Potential Partners
Resource Allocation	**1. Develop a fundraising strategy for the Niagara Escarpment Biosphere Reserve.**	***Where appropriate, NEBR & CBRA*** ✓ Will act in a supportive role to assist others in securing funding for projects (letters of support, services in kind, guidance for proposal writing).	➢ ***Government departments, ministries & agencies*** ➢ ***Corporate foundations & marketing departments***

Table 2A: Summary of Priorities and Initiatives for Preserving Natural Diversity within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Habitat Continuity and Integrity	**Develop a Natural Heritage System for the Niagara Escarpment Planning Area**	• To develop a set of *ecological maps* that could be overlaid to identify priority areas for restoration, locations of significant species, enhancement of buffer zones and gaps in relevant stewardship activities. • Achieve the vision of the Niagara Escarpment as an interconnected landscape. • Maps of the suggested Natural Heritage system could include all elements of a standard Natural Heritage system, but also go a step farther to include direct stewardship initiatives on public land by willing landowners, restoration activities, corridor linkages.	1) Inventory/Monitoring of existing natural resources, habitat fragmentation, significant species. 2) Assemblage of information on existing monitoring activities and collection of baseline data that is at a common standard. 3) Integration of collected information into a set of ecological maps. 4) Determine projects and initiatives based on an analysis of the collected information and identification of priority areas as indicated by the Natural Heritage System ecological maps.	1. 1-2 2. 1-2 3. 2-4 4. 2-4
	Expand the network of forest biodiversity monitoring plots	• Establish and inventory SIMAB forest biodiversity monitoring plots in the Northern end of the NEBR.	1) Work with private landowners to establish monitoring plots 2) Share information with the community on the benefits of monitoring.	1. 1-2 2. 1-2

Table 2A: Summary of Priorities and Initiatives for Preserving Natural Diversity within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
	Habitat Restoration and Enhancement Projects	• Utilize the best available conservation science to protect areas of essential biological diversity. • To effectively restore landscapes so that they can once again support a diversity of native and indigenous species, sites must be strategically selected based upon rigorous ecological measures and scientific consensus. • Promote and encourage restoration on private lands.	1) Develop plans for restoration of interior forest habitat within significant and or threatened areas. 2) Link natural corridors on Escarpment and beyond (allowing for the migration of species). 3) Promote and encourage restoration and stewardship activities on lands that have been identified as priority sites for conservation.	1. 2-4 2. 2-4 3. 1-2

Table 2A: Summary of Priorities and Initiatives for Preserving Natural Diversity within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Water Quality and Quantity	**Research and/or environmental monitoring directed at a better understanding of the impacts of human activity on ground and surface water**	• Document the extent of water-monitoring activities within the Niagara Escarpment Plan Area. • Aggregate resource development, water taking, ponds, agriculture and settlements all have the potential to impact surface and ground-water resources. Monitoring of these resources is required to determine if land uses are impacting surface and ground-water resources.	1) Determine who controls water resources (well-drilling, water taking etc). This will assist in anticipation of partner and information sharing opportunities. 2) Create an inventory of those groups/agencies involved in ground/surface water monitoring. 3) Identify parameters, techniques and scales of monitoring being used. 4) Determine gaps in aquatic monitoring activities along the Escarpment. 5) Identify trends in water quality/quantity (e.g. are water table levels decreasing? Over what time-period?).	1. 1-2 2. 1-2 3. 1-2 4. 1-2 5. 2-4

Table 2A: Summary of Priorities and Initiatives for Preserving Natural Diversity within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
	Habitat Restoration and Enhancement Projects	• Ensure that the water resources of the Niagara Escarpment Biosphere Reserve are able to support healthy aquatic life and safe human recreational opportunities. • Ensure that the water resources of the Niagara Escarpment remain a reliable source of suitable water for current and future generations. • Enhance riparian and in-stream habitats to improve the health of the aquatic communities and overall water quality for the Niagara Escarpment Biosphere Reserve. • Improve stream health with the promotion and implementation of "Best Management Strategies" for watercourses affected by agriculture, industry, dam operations etc.	1) Promote workshops to inform landowners of strategies to improve stream health in watercourses affected by agriculture, dams or on-line ponds. 2) Identify priority sites for restoration and rehabilitation on private and public lands. 3) Actively promote and implement projects that improve the quality of water through rehabilitation of riparian and in-stream habitat. 4) Continue with biological and chemical monitoring programs to ensure strategies are successful.	1. 1-2 2. 1-2 3. 2-3 4. 1-4

Table 2B: Summary of Priorities and Initiatives for Encouraging Sustainability of Human Activities within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Actions	Description of Goals	Suggested Activities and Process	Suggested Timeline
Preservation of Open Landscape Character	**Compile, conduct, and share research and monitoring about landscape change**	• Assess the extent and rate of change of the Niagara Escarpment's open landscape. • Develop a vision for the Escarpment's open space. Consideration should be given in to setting targets for natural landscapes and open working landscapes.	1) Develop a vision for open landscape character related to activities and development on the Escarpment 2) a) Conduct a community values analysis to determine a vision for open and rural landscape character. b) Complete an "institutional analysis" of Escarpment stakeholders who may affect landscape character in various regions (e.g. municipalities, government ministries, and industry). Determine their visions for open landscape character. 3) Determine sustainability of current practices and policies as related to the defined "Open Landscape Character".	1. 1-2 2. 2-3 3. 2-3
	Compile, conduct and share research and monitoring about the preservation of open landscapes, sustainable land uses and sustainable communities	• Research and environmental monitoring into the impacts of human activities on aquatic and terrestrial ecosystems.	1) Demonstration or stewardship projects that preserve open landscape.	1. 2-4

Table 2B: Summary of Priorities and Initiatives for Encouraging Sustainability of Human Activities within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Actions	Description of Goals	Suggested Activities and Process	Suggested Timeline
Sustainability of Natural Resources	**Research and environmental monitoring on sustainable use of natural resources**	• To assess the sustainability of human uses, particularly extractive uses.	1) Research and environmental monitoring on sustainable practices for extractive activities (e.g. water taking, forestry, aggregate). 2) Research and environmental monitoring into the impacts of recreational activities on the natural resources of the NEBR (conduct user surveys, trail impact studies, impact assessments). 3) Facilitate community dialogue about sustainable resource use (e.g. forestry) through local forums, meetings and other information-sharing opportunities (develop informational report to share findings on sustainable recreational use).	1. 1-2 2. 2-4+ 3. 1-4+

Table 2B: Summary of Priorities and Initiatives for Encouraging Sustainability of Human Activities within the Niagara Escarpment Biosphere Reserve

Suggested Priority	Suggested Actions	Description of Goals	Suggested Activities and Process	Suggested Timeline
Sustainability Standards	**Develop product branding and marketing standards**	• Develop standards for branding and marketing Niagara Escarpment Biosphere Reserve products. • Educate and provide information on biosphere reserve goals and principles to participating business's interested in using the biosphere reserve status as a marketing tool.	1) Research necessary steps for potential trademark policy. Consult biosphere communities, especially business interests in the development of standards. 2) Investigate current use and success of the use of the BR trademark for marketing. 3) Analyze experiences with biosphere branding in other jurisdictions (especially Europe). 4) Develop "value-added" criteria for the use of biosphere reserve branding by individual agencies and corporations seeking to use the BR for marketing purposes.	1. 1-2 2. 2-3 3. 2-3 4. 2-3

Table 2C: Summary of Priorities and Initiatives for improving the capability of communities to make sound decisions for conservation and sustainable development

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Creation of Local Biosphere Reserve Committees	**Formation of biosphere committees or biosphere-based sectors within existing community organizations**	• Encourage the formation of local biosphere reserve committees in the Niagara Escarpment Biosphere Reserve. • Develop an organizational structure, guidelines and procedures for a local biosphere reserve association. • Develop a plan of biosphere related activities to be implemented by a range of local partners. • Develop mechanisms for information sharing.	1) Learn from the experience of the Bruce Peninsula Biosphere Reserve Association with view to bringing the concept to other areas. 2) Develop mechanisms for information sharing to promote the concept in other areas.	1. 1-2 2. 2-4+
Data Management & Information Sharing	**Creation of a central database for biosphere related monitoring and research**	• Ability to make sound decisions for land use and human activities based by providing access to accurate, reliable scientific and social data. • Collection and long-term maintenance of data.	1) Creation of a metadata database for NEBR related projects. Survey's sent out to participants requesting the details of the research and monitoring activities. 2) Possibility of one academic location hosting the data? (partner with a University, students.	1. 2-3 2. 2-3
	"State of Escarpment" Reporting	• Provide concise, accurate reliable data to stakeholders, decision-makers and community members from a single source or connected network of sources.	1) Produce a regularly published "State of the Escarpment" Report. An important aspect of monitoring, the report may include ecological trends, landscape guides and reports on current monitoring and research activities.	1. 1-4+

Table 2C: Summary of Priorities and Initiatives for improving the capability of communities to make sound decisions for conservation and sustainable development

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Community Awareness Education & Training	**Communications**	• Improve communications about biosphere reserve objectives.	1) Develop a communications strategy and plan	1. 1-2
	Biosphere Reserve Signage and Education Program	• Raise awareness of residents and guests of the Niagara Escarpment Biosphere Reserve area.	1) Signs to be posted on major roads entering the Niagara Escarpment Biosphere Reserve.	1. 1-4
	Stewardship	• Promotion of community stewardship activities	1) Enter into discussion with University of Guelph and Ontario Heritage Foundation about the possibility of community launch and/or community workshops using the new stewardship handbook *"Caring for Your Land"*.	1. 1-2
	Publications and Electronic Communications	• Conduct an inventory of publications and electronic media with a view to providing these with information about the biosphere reserve (as a component of the Communications Plan, noted above).	1) Inventory of current publications. 2) Add information about the Niagara Escarpment Biosphere Reserve and biosphere reserve concepts to the Niagara Escarpment Web site. 3) Examine possibilities for other forms of electronic communications; e.g. e-newsletters, listserv, news.	1. 1-2 2. 1-2 3. 2-4

Table 2C: Summary of Priorities and Initiatives for improving the capability of communities to make sound decisions for conservation and sustainable development

Suggested Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Community Awareness Education & Training continued...	**Education Programs**	• Identify and update Niagara Escarpment related resources to create programs for teachers that are adaptable to the new Ontario school curriculum	1) Examine potential of UNESCO Associated Schools Project Network concept. 2) Examine possibility of hosting a community event for youth in a biosphere reserve community (the Bruce Peninsula Biosphere Reserve Association to host the Ontario Regional Envirothon in 2004.)	1. 2-4 2. 2-4
	Events	• Identify existing events that could potentially incorporate biosphere reserve education	1) Complete an inventory of regular community events and examine the potential for enhancement with biosphere reserve incorporation. 2) Inventory organizations who sponsor events pertaining to sustainable land use matters within the NEBR.	1. 1-2 2. 1-2
	Fostering Linkages	• To recognize ecosystem linkages between the Niagara Escarpment Biosphere Reserve and adjoining areas.	1) Explore mechanisms for information sharing between the Niagara Escarpment Biosphere Reserve, the Great Arc and NOAH. 2) Include Universities in the communication process; promote the research of biosphere-related topics and issues to graduate students.	1. 1-2 2. 1-4+

Table 2C: Summary of Priorities and Initiatives for improving the capability of communities to make sound decisions for conservation and sustainable development

Priority	Suggested Action	Description of Goals	Suggested Activities and Process	Suggested Timeline
Resource Allocation	**Develop a fundraising strategy for the Niagara Escarpment Biosphere Reserve**	• Overlap identification/gap analysis/coordination of funding. • To raise funds for biosphere-related activities.	1. Creation of a prospectus on the Niagara Escarpment Biosphere Reserve for funders. 2. Where appropriate NEBR and CBRA to act in supportive roles, directing communities to appropriate resources for the implementation of projects. 3. Develop a database of partnership and funding opportunities for biosphere communities.	1. 1-2 2. 1-2 3. 2-4

Appendix A: Consultants and Attendees for Focus Group

Firstname	Lastname	Title	Organization
Neil	Hester	Niagara Escarpment Coordinator	Ministry of Natural Resources
Jacqueline	Winters	Executive Director, Bruce Trail Assoc.	Bruce Trail Association
Ian	Lang	Municipal Councillor	Clearview Township
Rowan	Shirkie	Publisher	Wine News
Frank	Burrows	Warden (A)	Bruce Peninsula National Park
Jackie	Fraser	Environment/Resource Manager	Aggregate Producers' Association of Ont.
Bob	Law	Planner	Nottawasaga Valley Conservation Authority
Lynne	Richardson	Senior Planner	Niagara Escarpment Commission (NEC)
Laurie	Adams	Chair, Bruce Peninsula Biosphere Assoc.	Bruce Peninsula Outfitters
Jim	Porter	Professor	Heritage Resource Centre U of Waterloo
Gordon	Nelson	Director / Professor	Heritage Resource Centre U of Waterloo
Stuart	Hilts	Director / Professor	Centre for Land and Water Stewardship
Andrew	Sorenson	Planner	Grey Sauble Conservation Authority
Jim	Turner	Area Councillor	Mulmur Township
Nicola	Ross	Environmental Planner	Caledon Countryside Alliance
Lisa	Grbinicek	Ecological Monitoring Specialist	ONE Monitoring Program, NEC
Marion	Plaunt	Senior Strategic Advisor	Niagara Escarpment Commission
Ken	Whitbread	Manager	Niagara Escarpment Commission
Shannon	Cassidy	Communications Officer	Niagara Escarpment Commission
Anne Marie	Braid	Ecological Monitoring Specialist	ONE Monitoring Program, NEC
Richard	Murzin	Manager, Communications / Director	NEC / CBRA
Jo-Anne	Rzadki	Watershed Stewardship Coordinator	Bay Area Restoration Council, NEC
Mark	Frawley	Director	Niagara Escarpment Commission
Mark	SproulеJones	President	Bay Area Restoration Council
Richard	Paterak	Municipal Councillor	Corporation of the Town of Caledon

Appendix B:

Summary of Current and Past Initiatives

Initiatives	Timeline
Data Management	
Data Collection & Distribution	Ongoing
The NEC's Ontario Niagara Escarpment Monitoring Program (ONEMP) currently hosts a metadatabase that contains information on over one hundred research, monitoring and enhancement activities that are being carried out by various researchers and organization along the Niagara Escarpment.	
Habitat Continuity and Integrity	
Environmental Monitoring, Ontario's Niagara Escarpment Monitoring Program (ONEMP)	Since 1996
The NEC's ONEMP is a long-term monitoring strategy based on the Niagara Escarpment Cumulative Effects Monitoring Framework. It is meant to evaluate the effectiveness of the Niagara Escarpment Plan.	
Habitat Fragmentation and Quality (ONEMP, Canadian Wildlife Service)	Ongoing since 1997
A goal of this jointly supported project is to continue the study of the relationship between forest habitat and the productivity of forest-interior birds.	
Restoration Projects (ONEMP, Conservation Authorities, CBRA)	Ongoing since 2001
Actively working to enhance the continuity of the Escarpment's natural environment by increasing forest interior habitat and restoring remnant oak savanna.	
Site (Plot) Level Change Over Time (ONEMP/University of Waterloo)	Ongoing since 1996
Long-term monitoring in one-hectare undisturbed plots will be compared with data from plots located in ecologically similar but more disturbed landscapes.	
Vulnerable/Endangered/Threatened Species and their habitat (ONEMP/MNR)	next 2-3 years
Areas of shared interest to MNR and NEC include amendment/re-designations of ANSI's, evaluation of ANSI buffer zone, inventory of VTE species, contributions to determining significant portions of habitat of threatened and endangered species, unevaluated wetlands or evaluated wetlands anticipated to coincide with development proposals and candidate sites for inclusion in the natural heritage system.	
Water Quality and Quantity	
Genetic Conservation (ONEMP, Trent University)	proposal suggested 2001
Combining genetic monitoring with the environmental indicator characteristics of brook trout offers the potential to generate quantitative measures of ecosystem health and linkages to land use policy. This information can contribute to planning decisions, landowner stewardship and protection of habitat.	
Ground Water Monitoring (ONEMP, Various Agencies)	to be implemented in the next 2-3 years
Data related to historic current and projected water table levels, aquifer extent and number/type of water taking permits within the Niagara Escarpment Plan Area is becoming increasingly relevant to local and regional planning processes.	

Appendix B:

Summary of Current and Past Initiatives

Stream Restoration (ONEMP/CBRA/Landowners) — Ongoing since 2000

A successful stream enhancement project in Grey County is a model for future stewardship, monitoring and maintenance opportunities

Surface Water Monitoring (ONEMP/Various Agencies) — Ongoing since January, 2002

ONE Monitoring program recently started identifying agencies undertaking surface-water monitoring activities. Staff is looking at parameters, techniques and scales of monitoring being used and collecting and documenting related reports produced by various agencies.

Up/Downstream Monitoring (Nottawasaga Conservation Authority) — Summer of 2002 and beyond

Potential exists to monitor stream quality up and downstream from naturalization activities.

Community Education and Awareness

Cooperative Management – The Human Component of Resource Management (Bruce Peninsula National Park) — 2000; implementation ongoing

Conservation and land use awareness and attitude surveys were sent out by the National Park as part of an effort to identify (and encourage) community interest in cooperative ecosystem management

Education Kits (NEC) — 2002

The NEC's Communications Department is updating educational materials for schools. The program involves identifying and updating existing Escarpment-related resources, preparing lesson plans, project topics and suggestions for independent study.

Great Arc (Heritage Resources Centre) — Ongoing

Project to promote international information sharing and sharing for the Escarpment – "the Great Arc" – as it traverses Southcentral Ontario, Michigan, Wisconsin and into New York).

Information Sharing (NEC, Various Stakeholders) — ongoing

Informal or planning-related sharing of information and data on an as-needed basis.

Interpretive Centres — proposed projects

Escarpment Centre Ontario, Owen Sound (business plan, 2000) and the Giant's Rib Discovery Centre, Waterdown (business plan, 1999) are two proposed interpretive centres promoting awareness, education and eco-tourism on the Escarpment. Giant's Rib also proposes product sales (eg., Escarpment wines, food products.)

Signage and public awareness program (CONE) — 1999 and ongoing

CONE's Niagara Escarpment World Biosphere road sign project involves placing a series of signs on county and regional roads where they enter the Niagara Escarpment Plan Area. Program is complemented by pamphlet that provides an overview to the Escarpment's status as a biosphere reserve. Program is delivered in cooperation with local municipal government, service clubs and business.

Signage, "Escarpment Country" (Town of Milton) — 2000 and ongoing

Marketing word mark developed and copyrighted by the Town of Milton to distinguish Milton as a desirable place to settle and/or do business.

Web Sites — ongoing

Niagara Escarpment Commission, CONE, BTA, Conservation Authorities etc. have web sites providing various types and levels of information about the Escarpment.

Appendix B

Summary of Current and Past Initiatives

Publications/Reports

Conference Series, *Leading Edge* (NEC) — Since 1994

Series of biennial conferences to showcase Niagara Escarpment and biosphere-related scientific research.

Newsletters (CONE, BTA) — ongoing

CONE produces a quarterly newsletter "On the Edge" dealing with Escarpment matters; BTRA produces quarterly news magazine dealing with Escarpment matters

Publication, Caring for Your Land

Landowner stewardship guide co-produced by the University of Guelph (Hilts/Mitchell). Has had two reprints and a third update and reprint is planned along with an updated resource guide for landowners.

Publication, Citizen's Guide to Protecting the Niagara Escarpment (CONE) — 1998

Book describing the Escarpment, its protection and how landowners and citizens can get involved.

Publication, Niagara Escarpment Stewardship, Bay Area Restoration Council — completed

Pamphlet describing importance of the Niagara Escarpment, tips to protect the Escarpment and land stewardship in relation to living on, or near, the Escarpment

Publication, Niagara Escarpment World Biosphere Reserve Brochure (BTA) — complete

Brochure describing UNESCO/MAB program, definition of Biosphere Reserves; Escarpment history, biology, development pressures, land stewardship and the Bruce Trail Association (funded by OHF and the McLean Foundation).

Publications (NEC, Ontario Heritage Foundation, MNR) — complete, distribution ongoing

Includes: Ecological Survey of the Niagara Escarpment Biosphere Reserve (vols. I and II); Guide to the Geology of the Niagara Escarpment; Leading Edge Conference Proceedings (1997); Explorers (tourism brochures focusing on different areas along the Escarpment); Ontario's Niagara Escarpment (ONE) Monitoring Brochure; Mineral Resource Study. NEC used to produce "Access" newsletter.

Trees 2000, Manual (Protecting Our Water and Environmental Resources) — complete

A manual based on actual experience to encourage communities and their schools to become involved in ecosystem restoration.

Appendix B

Summary of Current and Past Initiatives

Community Involvement

Escarpment Celebration Days (CONE, BTA) — ongoing

Niagara Escarpment celebration days in a various Escarpment communities every other year. CONE's biennial event features hikes, presentations, stories, crafts, games, family activities etc. BT member clubs frequently run open-invitation events for the public.

Stewardship

Cooperative Management – The Human Component of Resource Management (Bruce Peninsula National Park) — 2000

Conservation and land use awareness and attitude surveys were sent out by the National Park as part of an effort to identify (and encourage) community interest in cooperative ecosystem management

Stewardship (Centre for Land and Water Stewardship) — since 1989

The Centre encourages projects that examine the sustainability of land and water resources, and works in co-operation with many external groups. Centre also sponsors landowner information sessions, related to forest management and to conservation planning on private lands. Publications include Caring for Your Land: A Stewardship Handbook for Niagara Escarpment. (see above)

Appendix C:

Partners in Operation in the Niagara Escarpment Biosphere Reserve

Federal Departments & Agencies

Department of the Environment (Canada)
Environmental Monitoring and Assessment Network (EMAN) (Environment
Parks Canada
Bruce Peninsula National Park & Fathom Five National Marine Park

Aboriginal Groups

Chippewas of Nawash First Nations

Ontario Ministries, Agencies & Commissions

Niagara Escarpment Commission
Niagara Escarpment Commission, ONE Monitoring Program
Ministry of Natural Resources, Land Use Planning Branch
Ministry of Natural Resources, Natural Areas Protection Program Natural
Ministry of Natural Resources, Natural Heritage Information Centre
Ontario Heritage Foundation (Ministry of Citizenship, Culture & Recreation)
Ministry of Agriculture, Food and Rural Affairs
Ontario Parks
Ministry of Municipal Affairs
Ministry of Tourism
Ministry of Transportation

Members of the Ontario Legislature for the NEBR

Bart Maves, PC-MPP, Niagara Falls
Dominic Agostino, LIB-MPP, Hamilton East
Hon. Cam Jackson, PC-MPP, Burlington
Bill Murdoch, PC-MPP, Bruce - Grey
Dr. Maria Boutrogianni, LIB-MPP, Hamilton Mountain
Hon. Brad Clark, PC-MPP, Stoney Creek
Hon, Tim Hudak, PC-MPP, Erie - Lincoln
David Christopherson, NDP-MPP, Hamilton West
Ted McMeekin, PC-MPP Ancaster-Dundas-Flamborough-Aldershot
Ted Chudleigh, PC-MPP, Halton
Peter Kormos, NDP-MPP, Niagara Centre
TBA, Dufferin - Peel - Wellington - Grey
Hon, Jim Wilson, PC-MPP, Simcoe - Grey
Jim Bradley, LIB-MPP, St. Catharines

Regional / County Goverment

Appendix C:

Partners in Operation in the Niagara Escarpment Biosphere Reserve

Regional Municipality of Niagara
City of Hamilton
Regional Municipality of Halton
Regional Municipality of Peel
County of Dufferin
County of Grey
County of Simcoe
County of Bruce

Municipal Goverment

Town of Milton
Town of Caledon
City of Owen Sound
The Municipality of Northern Bruce Peninsula
Town of the Blue Mountains
Township of St. Vincent
Township of Sydenham
Town of Halton Hills
Township of Mulmur
City of Burlington
City of St. Catharines
City of Thorold
Town of Grimsby
Town of Lincoln
Town of Niagara-on-the-Lake
Town of Pelham
Township of Clearview
Town of South Bruce Peninsula
City of Niagara Falls
City of Owen Sound
Town of Caledon
Town of Mono
Association of Municipalities of Ontario

Conservation Authorities

Association of Conservation Authorities
Credit Valley Conservation
Conservation Halton
Niagara Peninsula Conservation Authority
Toronto Region Conservation Authority
Hamilton Region Conservation Authority
Grey Sauble Conservation Authority

Appendix C:

Partners in Operation in the Niagara Escarpment Biosphere Reserve

Nottawasaga Valley Conservation Authority

Non-Government Public Interest Groups

Coalition on the Niagara Escarpment (CONE) (© = Affiliation with CONE)
Bruce Trail Association ©
Federation of Ontario Naturalists ©
Heritage Halton Hills
The Alpine Club of Canada ©
Toronto Caving Group ©
Canadian Wildlife Service
Grey Association for Democracy & Growth
K.E.E.P.
Protect Our water and Environmental Resources (P.O.W.E.R.) ©
Beaver Valley Heritage Society ©
Caledon Ratepayers Association ©
Grey Association for Better Planning
Save the Oak Ridges Moraine (STORM) ©
Bay Area Restoration Council
Bruce Peninsula Biosphere Reserve Association
Earthroots ©
Friends of the Earth
Friends of the Escarpment (Grimsby) ©
Friends of the Red Hill Valley (Hamilton) ©
Hamilton Naturalists Club ©
Bruce Peninsula Environment Group ©
The Ontario Environment Network
Niagara Falls Nature Club
Halton/North Peel Naturalists Club ©
Peninsula Field Naturalists
Owen Sound Field Naturalists ©
Hamilton Field Naturalists ©
Toronto Field Naturalists
Saugeen Field Naturalists ©
Upper Credit Field Naturalists ©
Canadian Parks & Wilderness Society
South Peel Naturalists' Club
Caledon Countryside Alliance
Ontario Streams ©
RAP
Escarpment Biosphere Conservancy ©
Blue Mountain Watershed Trust Foundation
Carolinian Canada

Appendix C:

Partners in Operation in the Niagara Escarpment Biosphere Reserve

Senior League Endowment Society of Collingwood ©
Federation of Ontario Cottagers' Association Inc.
Ontario Society for Environmental Management.
Hike Ontario
Ontario Trail Riders Association
Coalition of Concerned Citizens
Preservation of Agricultural Lands Society (PALS) ©
Ontario Federation of Anglers and Hunters

Professional Associations

Ontario Institute of Agrologists
Ontario Professional Planners Institute

Business & Industry

Aggregate Producers Association of Ontario (APAO)
Wine Council of Ontario
Ontario Forestry Association
Ontario Federation of Agriculture
Grey Bruce Bed and Breakfast Association
Headwaters Country Tourism Association
Niagara Nature Tours
Bruce Peninsula Outfitters

National Non-Government Organizations

Canadian Nature Federation
Canadian Environmental Law Association ©
Canadian Wildlife Service, Canadian Council of Ecological Areas
Ducks Unlimited Canada
Nature Conservancy of Canada, Ontario Office
Sierra Club of Canada, Eastern Canada Chapter ©
Sierra Legal Defense Fund
Wildlands League ©
Wildlife Habitat Canada

Universities

University of Guelph, Centre for Land and Water Stewardship
University of Waterloo, Heritage Resource Centre
University of Waterloo, Faculty of Environmental Studies
University of Toronto, Faculty of Planning
Brock University (St. Catharines)
Sir Sanford Fleming College (Lindsay)

Education Centres

St. Johns Outdoor Study Centre

Appendix C:

Partners in Operation in the Niagara Escarpment Biosphere Reserve

Boyne River School of Natural Science
Pine River Outdoor Education Centre
Mount Alverno Retreat/Outdoor Education Centre
Mono Cliffs Outdoor Education Centre
Giant's Rib Discovery Centre (Hamilton Region Conservation Auth.)
Escarpment Centre Ontario (ECO) (City of Owen Sound)